

Application No.: 10/716,561

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REMARKS

Claims 1-26 are active and pending in the present application; all of which stand rejected. Claims 14-26 stand rejected under 35 U.S.C. § 101 and claims 1-26 stand rejected under 35 U.S.C. § 103 as unpatentable over Van Hook (US Patent No. 6,266,758) in view of Song (US Patent 5,991,531).

Rejection under 35 U.S.C. § 101

The Examiner has rejected Claims 14-26 as directed to non-statutory subject matter under 35 U.S.C. § 101. According to the Examiner, the claimed methods of providing, rather than executing, an instruction set do not generate any tangible result and therefore amount to "abstract ideas" that cannot be patented. Applicants respectfully disagree. The Examiner bears the *prima facie* burden of establishing that the claims are not directed to patentable subject matter. See MPEP § 2106.

The breadth of subject matter appropriate for patenting is extraordinarily broad. Under the Patent Act, "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" is statutory subject matter. See 35 U.S.C. § 101 (emphasis added). The Act further defines "process" to include a "method." See id. § 100(b). A "method" is therefore statutory subject matter. Here, Claims 14-26 each recite "method[s]" of providing data and memory capabilities in a programmable processor.¹ Thus, the rejected "method" claims are facially directed to an appropriate category of subject matter.

¹ For example, independent Claim 14 from which Claims 15-26 each depend recites:

14. A method of providing data and memory capabilities in a programmable processor, the method comprising:

providing, in an instruction set for the processor, a group instruction that operates on a plurality of data elements in partitioned fields of at least one register to produce a catenated result;

Application No.: 10/716,561

Congress intended, and the Supreme Court has recognized, that statutory subject matter encompasses “anything under the sun that is made by man.” See MANUAL OF PATENT EXAMINING PROCEDURES (“MPEP”) § 2106 (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09 (1980)) (emphasis added). For this reason, the Federal Circuit has strongly cautioned against reading unwritten limitations into section 101:

The repetitive use of the expansive term “any” in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to “anything under the sun that is made by man.” Thus, it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations.

See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (internal citation and footnote omitted) (emphasis added). Here, the Examiner has imported into section 101 a requirement that conflicts with the guiding principle that “anything under the sun that is made by man” is patentable subject matter. As explained further below, the claimed subject matter—namely, “method[s] of providing data and memory capabilities in a programmable processor”—is the product of human activity and therefore should not be excluded from patent protection.

In rejecting Claims 14–26, the Examiner has characterized methods for providing, rather than executing, the recited instruction sets as “abstract ideas.” Respectfully, this is a

providing, in the instruction set for the processor, an aligned instruction operable to copy first data according to an aligned memory address, the first data having a data width, the data width specified as a fixed value by the aligned instruction, the aligned memory address being one of a plurality of memory addresses regularly spaced by the data width; and

providing, in the instruction set for the processor, an unaligned instruction operable to copy second data according to an unaligned memory address, the second data having the data width, the data width specified as a fixed value by the unaligned instruction, the unaligned memory address being a memory address that is not constrained to be one of the plurality of memory addresses regularly spaced by the data width.

Application No.: 10/716,561

mischaracterization. Applicants recognize, of course, that “abstract ideas, laws of nature and natural phenomena” are not patentable. Each of these three categories of subject matter are directed to something not “made by man” because neither abstract ideas (*i.e.*, “disembodied concepts or truths”) nor laws of nature and natural phenomena stem from human activity. Here, in sharp contrast, both the instruction sets recited in Claims 14–26 and the act of providing those instruction sets are the direct product of human activity. The deliberate act of providing these specific instruction sets cannot be fairly deemed a “disembodied concept[] or truth[].” *Cf. State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998). Because the subject matter recited in Claims 14–26 is “made by man” and cannot be excluded as an “abstract idea,” it is patentable subject matter.

Not only is the claimed subject matter not an “abstract idea” because it is man made, it is not an “abstract idea” because it has a very specific and practical use. The Examiner nevertheless contends that because merely providing (rather than executing) the instruction set does not itself generate a “tangible result,” the act of providing the instruction set must be merely an abstract idea. This is inconsistent with the MPEP, which provides that “[o]nly when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. § 101.” *See* MPEP § 2106. Here, both the instruction sets and the claimed acts of providing them have tremendous practical application in the field of computing. Respectfully, the Examiner has no basis to conclude otherwise. These instructions can serve as building blocks for new and more powerful computer programs. That is, computer programmers can use the instructions to write new computer program that may not have been possible before. Providing such important building blocks is a real and practical application within the field of computing.

Application No.: 10/716,561

Furthermore, statutory method claims do not necessarily require a physical transformation that yields a tangible result:

The notion of “physical transformation” can be misunderstood. In the first place, it is not an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application. As the Supreme Court itself noted, “when [a claimed invention] is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.” *Diehr*, 450 U.S. at 192, 101 S.Ct. 1048 (emphasis added). The “e.g.” signal denotes an example, not an exclusive requirement.

AT&T Corp. v. Excel Comms., Inc., 172 F.3d 1352, 1358 (Fed. Cir. 1999) (emphasis added).

Thus, the requirement for a transformation to yield a “tangible result” is not an absolute requirement but rather a guidepost to ensure that the claims recite subject matter that the patent laws were designed to protect. Here, the Examiner impliedly acknowledges that the instruction sets themselves as well as the execution of the instruction sets would constitute patentable subject matter. There is no reason that the patent laws should not also protect against the unauthorized act of providing those instruction sets.

Furthermore, the MPEP provides that when assessing whether subject matter is statutory, the claim must be viewed “as a whole.” See *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994); MPEP § 2106. Here, the claims as a whole are not directed merely to the provision of amorphous instruction sets but rather to the provision of specific instruction sets that when executed generate an adequately tangible result—namely, “a catenated result.” See, e.g., *Alappat*, 33 F.3d at 1544 (recognizing that the production of a “smooth waveform” from transformed data was a “useful, concrete and tangible result”); *Arrhythmia Res. Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1060 (Fed. Cir. 1992) (holding that the condition of a patient’s heart, determined by transforming electrocardiograph signals, was a useful, concrete and tangible result); *State Street Bank*, 149 F.3d at 1373 (holding that a “final share price,” calculated by

Application No.: 10/716,561

transforming data representing discrete dollar amounts, is a "useful, concrete and tangible result").

Finally, the policies against patenting "abstract ideas" are inapplicable to Claims 14–26. The prohibition against claiming "abstract ideas" stems from "concern over 'preemption' of ideas" (*i.e.*, the fear that such patents would preempt entire fields that fall within the rubric of the claimed idea). See MPEP 2106. Here, the claimed methods are directed to providing specific, particularized instruction sets with detailed limitations. Because the specific instruction sets themselves are sufficiently well defined to constitute patentable subject matter, so too is the method of providing them, directly or indirectly, to end users.

Claims 14–26 recite subject matter that satisfies the "anything under the sun that is made by man" test of section 101 and that is not excluded from patentability as abstract ideas, laws of nature or natural phenomena. Furthermore, the claimed subject matter falls within categories of subject matter recognized as patentable by both the Federal Circuit and the MPEP. Because the claimed subject matter is statutory under section 101, Applicants respectfully request that the Examiner withdraw the section 101 subject matter rejections.

Rejection under 35 U.S.C. § 103

Regarding the obviousness rejections, the primary Van Hook reference does not qualify as prior art to the pending claims, because the present application claims priority back to the August 16, 1995, filing date of U.S. Patent No. 5,742,840 (the '840 patent), as indicated by the priority claim, which is hereby reproduced for the convenience of the Examiner:

"This application is a continuation of U.S. Patent Application No. 10/646,787, filed August 25, 2003, which is a Continuation of U.S. Patent Application No. 09/922,319, filed August 2, 2001, now U.S. Patent No. 6,725,356 issued on April 20, 2004, which is a Continuation of U.S. Patent Application No. 09/382,402, filed August 24, 1999, now

Application No.: 10/716,561

U.S. Patent No. 6,295,599, which claims the benefit of priority to Provisional Patent Application No. 60/097,635 filed August 24, 1998, and is a continuation-in-part of U.S. Patent Application No. 09/169,963, filed October 13, 1998, now U.S. Patent No. 6,006,318, which is a continuation of U.S. Patent Application No. 08/754,827, filed November 22, 1996 now U.S. Patent No. 5,822,603, which is a divisional of U.S. Patent Application No. 08/516,036, filed August 16, 1995 now U.S. Patent No. 5,742,840."

Support for all the pending claims is found in the disclosure of the '840 patent. Van Hook's filing date was March 5, 1999, more than one year later than the August 15, 1995 filing date of the '840 patent. Therefore, Van Hook is not prior art to the claims of the present application.

As the priority claim states, U.S. Patent 6,295,599 ("the '599 patent" is in the direct chain of priority for the present application. Applicants note that various amendments were made to the specification of the '599 patent for submission as the specification of the present application. However, no new matter was added, since the amendments to the specification were made exclusively by inserting materials from the appendix of the '599 patent ("the '599 appendix"). The '599 appendix is (a) attached as an appendix in microfiche form in the '599 patent, (b) attached in CD-ROM format and incorporated by reference in U.S. Patent Application No. 10/646,787, which is a continuation of the '599 patent and the immediate parent of the present application.

To provide support for the claims and comply with MPEP 608.01(i), amendments were made to the specification of the '599 patent for submission in the present specification, which included adding both text and new Figs. 12 through 49G from the '599 appendix, primarily related to different embodiments of various instructions that the invention is capable of executing. Many of these specific instructions are illustrated in new Figs. 31A through 47C, which are reproduced directly from the '599 appendix. Text corresponding to Figs. 31A through

Application No.: 10/716,561

47C is derived from the '599 appendix and describes the specific processor instructions set forth in those figures.

Pending claims 1-26 are fully supported by the '840 patent and its appendix ("the '840 appendix"), as well as by the '599 patent and the '599 appendix. Thus, claims 1-26 should be accorded an effectively filing date of August 16, 1995. Support for specific claim elements in both the '840 patent and the '599 patent is provided below.

A programmable processor, as recited in claim 1, is described in the '840 patent at col. 4, lines 2-5 and in the '599 patent at col. 1, lines 56-60 and col. 15 line 9. A data path is described in the '840 patent at col. 4, lines 27-28 and in the '599 patent at col. 5, lines 8-10. A register file, as recited, is described in the '840 patent at col. 4, lines 33-35 and in the '599 patent at col. 4, lines 18-19. An execution unit is described in the '840 patent at col. 4, lines 35-38 and in the '599 patent at col. 5, lines 44 and 51-56. The capability to execute group instructions operations involving multiple data elements in partitioned fields of one or more registers to produce catenated results, as recited, is described in the '840 patent at col. 2, lines 59-65, in the '840 appendix at p. 129-135 and 138-141, in the '599 patent at col. 5, lines 5-10, and in the '599 appendix at p. 258-260, 267-268, and 276-282. As shown in Fig. 1 of the '599 patent, a cache memory 117 is arranged in communication with a bus interface 118, as recited in claim 1 as well.

In particular, claim 1 also recites an aligned and unaligned instruction operable to copy respective data to an aligned or unaligned memory address. The capability to execute the aligned and unaligned data load and/or store functions, as recited in the claims, is described in the '599 Appendix at pages 142 – 149 and 150 -157.

Application No.: 10/716,561

With regard to claim 2, a set of aligned and unaligned load instructions are described at page 142-149; while with respect to claim 3, similar "store" instructions are described at pages 150-157 of the Appendix.

With respect to claims 4-10, the table of operation codes on page 142 of the Appendix describes for example, floating-point instructions, 128 bit instructions, 64 bit instructions, integer instructions, etc. as recited in the claims. With respect to claim 11, page 143 of the Appendix describes an "access disallowed by virtual address" exception when a specified memory address is not aligned.

Claims 14-26 recite claim features similar to those recited in claims 1-13 wherein claims 1-13 relate to a programmable processor and claims 14-26 relate to a method involving a programmable processor. Accordingly, the support in the '599 Appendix identified with regard to claims 1-13 is also applicable to claims 14-26.

As illustrated, all pending claims are supported by the '840 patent and/or the '840 appendix, and the '599 patent and/or the '599 appendix. That is, all pending claims 1-26 have a priority date back to August, 1995, which predates Van Hook. Thus, Van Hook does not qualify as a prior art reference for purposes of the Examiner's obviousness rejection. Therefore, Applicants respectfully request that rejections of claims 1-26 under 35 U.S.C. § 103(a) be withdrawn.

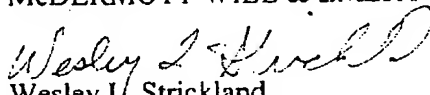
Accordingly, it is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

Application No.: 10/716,561

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Wesley L. Strickland
Registration No. 44,363

4370 La Jolla Village Drive, Suite 700
San Diego, CA 92122
Phone: 858.535.9001 WLS:bsl
Facsimile: 858.597.1585
Date: September 8, 2006

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